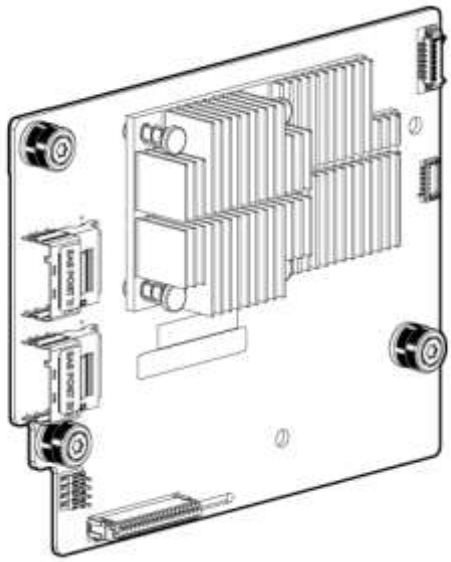
Overview

## HP H240ar Smart Host Bus Adapter

The HP H240ar Smart Host Bus Adapter is a 2X4 internal ports flexible Smart HBA for DL360, DL380 and ML350 Gen9 servers which provide customers with the flexibility and speed they have come to expect from HP. The H240ar Smart HBA is ideal for internal connectivity to HDDs and SSDs that provides support for 12Gb/s SAS and 6Gb/s SATA Hard Disk Drives. H240ar Smart HBA can also provide high performance for SSDs that do not require data protection. This SAS HBA is ideal for driving cost-effective and reliable scalability in today's data centers. The HP H240ar can scale internal storage in the servers with the addition of HP 12G SAS Expander card. The H240ar Smart Host Bus Adapter provides flexibility to run in HBA mode or simple RAID mode. When operating in simple RAID mode, it provides RAID 0, RAID 1, and RAID 5 with optional HP Secure Encryption capabilities. Unlike the HP Smart Array Controllers, the H240ar does not support cache modules for acceleration.



## Model

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| **Host Bus Adapter** | HP H240ar 12Gb 1-port Int Smart Host Bus Adapter | 726757-B21 |

**Kit contents**

- Flexible HP H240ar Smart Host Bus Adapter

Compatibility

## Compatibility

**Servers**

**ProLiant DL (rack-optimized)**:

- HP ProLiant DL360 Gen9
- HP ProLiant DL380 Gen9

**ProLiant ML (expansion-optimized)**:

- HP ProLiant ML350 Gen9

## Standard Features

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| **Performance** | Designed to be as flexible as HP servers, HP H240ar Smart Host Bus Adapter provides support for internal HDDs and SSDs. The HP adapter delivers exceptional system performance, with eight 12Gb/s SAS ports providing up to 96Gb/s total storage bandwidth.<br>HP's High Performance Architecture sets new boundaries for industry performance expectations!<br>• 12Gb/s SAS (bandwidth per physical link)<br>• 96Gb/s total available bandwidth (8 physical links x 12Gb/s) |
| **HP Server Integration** | Fully integrated and tested with ProLiant servers and management software. |
| **Key Features** | • SAS technology delivers high performance and data bandwidth up to 12Gb/s per physical link<br>• Mix-and-match SAS and SATA hard drives; deploy drive technology as needed<br>• PCIe 3.0 x8 ( 8GB/s bandwidth) |
| **Ports** | Eight (8) SAS physical links distributed across 2 x4 internal SFF8087 Mini-SAS connectors |
| **HP Secure Encryption** | HP Secure Encryption is a Smart HBA controller-based (running in RAID mode only) data encryption solution for ProLiant Gen9 servers that protects sensitive, mission critical data. This is an enterprise-class encryption solution for data at rest on any bulk storage attached (with the exception of tape or external arrays such as the P2000 or MSA 2040) to the supported HP Smart Array Px4x family of controllers including data on the cache memory of the controller.<br><br>The solution is available for both local and remote key management mode deployments. Local Key Management Mode is focused on single server deployment where there is one Master key per controller that is managed by the user. All volumes still have their own unique key(s) for data encryption. Remote Key Management Mode is for enterprise wide deployments and requires HP Integrated Lights Out (iLO) Advanced or Scale Out editions v 1.40 or later and HP Enterprise Secure Key Manager (ESKM) 3.1 or any later release. The HP ESKM manages all the encryption deployments from just a few servers to thousands of servers and 2 million keys per HP ESKM 3.1 cluster.<br><br>For more information please visit www.hp.com/go/hpsecureencryption |
| **Capacity** | Fulfilling the need for high performance and capacity expansion, the HP H240ar SAS HBA offers:<br>• Eight 12Gb/s SAS physical links supporting up to 2 simultaneous x4 SAS Ports<br>• Capacity up to 144TB |
| **Form Factor** | • Flexible Smart Host Bus Controller |
| **Operating Systems** | Microsoft Windows Server 2012 R2<br>Microsoft Windows Server 2012<br>Microsoft Windows Server 2008 R2<br>Microsoft Windows Hyper-V 2012<br>Microsoft Windows Hyper-V 2008<br>Red Hat Enterprise Linux 7<br>Red Hat Enterprise Linux 6 U5<br>SUSE Linux Enterprise Server 11 U5<br>SUSE Linux Enterprise Server 12 (Support pending)<br>Canonical Ubuntu 14.04*<br>Canonical Ubuntu 12.04*<br>Solaris 11.1*<br>**NOTE:** For more Linux OS support & certification information, please visit our the ProLiant & |

## Standard Features

BladeSystem Server Linux matrix:
http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html

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| **Off Line** | HP Smart Component for HP H240ar Smart Host Bus Adapter |
| **Warranty** | The warranty for this device is 1 year parts only.<br>**Warranty Upgrade Options**<br>• Response - Upgrade on-site response from next business day to same day 4 hours<br>• Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days<br>• Duration - Select duration of coverage for a period of 1, 3, or 5 years<br>• Warranty upgrade options can come in the form of Care Packs, which are sold at the HP System level this product attaches too |

## Service and Support

**Service and Support**

**HP Technology Services**
HP Technology Services offers you technical consultants and support expertise to solve your most complex infrastructure problems. We help keep your business running, boost availability, and avoid downtime.

**Protect your business beyond warranty with HP Care Pack Services**
When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HP Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, HP can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

## Recommended HP Care Pack Services for optimal satisfaction with your HP product

**Recommended Services**

**3-Year HP 24x7 4 hour Response, Proactive Care**
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

**OR**

**3-Year HP 24x7 4 hour Response, HP Collaborative Support**
Provides problem resolution support across the stack of HW, firmware, and HP and 3rd party SW. In case the issue is with 3rd party SW, HP does known issue resolution. If HP cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf

**HP Installation of ProLiant Add On Options Service**
This easy-to-buy, easy-to-use HP Care Pack service helps ensure that your new HP hardware or software is installed smoothly, efficiently, and with minimal disruption of your IT and business operations

## Related HP Care Pack Services to enhance your HP product experience

**Related Services**

**3-Year HP 24x7 4 hour Response, Proactive Care**
Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

**OR**

**3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service**
Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

**3-Year HP 6-hour Onsite Call-to-Repair, HP Collaborative Support**

## Service and Support

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| | Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HP Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HP. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf<br><br>**HP Proactive Select Service**<br>Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf |
| **Insight Remote Support** | Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more http://www.hp.com/go/insightremotesupport |
| **HP Support Center** | Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc<br><br>HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime.<br>HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement.<br><br>*HP' Support Center Mobile App is subject to local availability |
| **Parts and materials** | HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service. |
| **Warranty / Service Coverage** | For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply.<br><br>The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option. |
| **For more information** | To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem |

## Related Options

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| **HP Tape Drives** | **DAT Tape Drives** | |
| | HP StoreEver DAT 160 SAS Internal Tape Drive | Q1587A |
| | **LTO Ultrium Tape Drives** | |
| | HP StoreEver LTO-2 Ultrium 448 SAS Internal Tape Drive | DW085A |
| | HP Ultrium 920 SAS Internal Tape Drive | EH847A |
| | HP StoreEver LTO-4 Ultrium 1760 SAS Internal WW Tape Drive | EH919A |
| | HP StoreEver LTO-4 Ultrium 1840 SAS Internal Tape Drive | EH860A |
| | HP StoreEver LTO-5 Ultrium 3000 SAS Internal Tape Drive | EH957A |
| | HP StoreEver LTO-5 Ultrium 3280 SAS Internal Tape Drive | EH899A |
| | **SAS Cables for Tape Drives and Automation** | |
| | HP Mini-SAS Cable for LTO Internal Tape Drive | AP746A |
| | **NOTE:** Use this cable to connect HP Ultrium 448, 920, 960, 1760 and1840 SAS internal tape drives to Mini-SAS (SFF8087) ports. This replaces the existing cable connecting the HBA/controller to the disk backplane. This replacement cable has three channels for disks and 1 channel for the tape drive (SFF8482 port). | |
| | HP SAS MIN-MIN 3X1X-5M Cable Assembly Kit | AG452A |
| | **NOTE:** This split cable connects internally to SAS Hard Drive Cage (3 channels) and externally to the tape drive (1channel) with other connector attaching to the controller. The external cable, for the drive, requires a PCI slot to exit the server. | |

## Technical Specifications

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| **Dimensions** | 5.3 x 3.56 x 1.23 in (13.46 x 9.04 x 3.12 cm) |
| **Disk Drives** | Up to 12Gb/s SAS (Serial Attached SCSI)<br>6Gb/s SATA (Serial Advanced Technology Attachment) |
| **Architecture** | Serial Attached SCSI (SAS)<br>Serial Advanced Technology Attachment (SATA) |
| **SAS Connectors** | 2x4 internal ports (Mini-SAS) |
| **Data Transfer Method** | 1.2GB/s bandwidth per port for combined throughput of up to 96Gb/s |
| **PCIe Bus Speed** | PCIe 3.0 x8 (8GT/s maximum bandwidth) |
| **Simultaneous Connection Transfer Ports** | 2 x 4 mini SAS Connectors |
| **Port Transfer Rate** | 1.2GB/s per x8 SAS Port |
| **Software upgradeable Firmware** | Yes |
| **Maximum Capacity** | 90TB SAS, 90TB SATA |
| **Memory Addressing** | 64-bit, supporting servers memory greater than 4GB |

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| **Environment-friendly Products and Approach** | **End-of-life Management and Recycling** | Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.